

1           In the Claims

2           Claims 1, 8, 13, 21, 28, 33, 38, 40, 44, 57, 63, 67 and 70 are amended.

3           Claims 1-75 remain in the application and are listed below:

4

5           1. (Currently Amended) An editing system comprising:  
6           a switch assembly comprising one or more software-implemented matrix  
7           switches, individual matrix switches comprising:  
8           one or more input pins configured to receive a data stream; and  
9           one or more output pins configured to output a data stream;  
10          the one or more input pins being routable to the one or more output pins,  
11          the switch assembly being configured to process both compressed and  
12          uncompressed data streams to provide a compressed output data stream that  
13          represents a user-defined editing project in which a user can construct said editing  
14          project by operating on one or more sources of multimedia content that provide  
15          said data streams.

16

17          2. (Original) The editing system of claim 1, wherein the switch  
18          assembly comprises multiple switches.

19

20          3. (Original) The editing system of claim 2, wherein one switch is  
21          configured to process compressed data streams.

22

23          4. (Original) The editing system of claim 2, wherein one switch is  
24          configured to process uncompressed data streams.

1       5. (Original) The editing system of claim 2, wherein one switch is  
2 configured to process compressed data streams, and one switch is configured to  
3 process uncompressed data streams.

4

5       6. (Original) One or more computer-readable media having computer-  
6 readable instructions thereon which, when executed by a computer, provide the  
7 editing system of claim 1.

8

9       7. (Original) The editing system of claim 1 configured as a multi-media  
10 editing system.

11

12       8. (Currently Amended) An editing system comprising:  
13           a media processing object configured to:

14           receive multiple data streams comprising compressed and  
15           uncompressed data streams; and

16           process the one or more data streams to provide a compressed output  
17           data stream that represents a user-defined media project in which a user can  
18           construct the media project by operating on one or more sources of multimedia  
19           content.

20

21       9. (Original) The editing system of claim 8, wherein the media  
22           processing object comprises a software-implemented switch assembly.

23

24

25

1       10. (Original) The editing system of claim 8, wherein the media  
2 processing object comprises a software-implemented switch assembly having  
3 multiple pins configured to receive or provide data streams.

4

5       11. (Original) The editing system of claim 8, wherein the media  
6 processing object comprises multiple software-implemented switches each of  
7 which having one or more pins configured to receive or provide data streams.

8

9       12. (Original) The editing system of claim 8, wherein the media project  
10 comprises a multi-media project.

11

12       13. (Currently Amended) A multi-media editing system comprising:  
13           a switch assembly comprising one or more software-implemented matrix  
14           switches, individual matrix switches comprising:  
15           one or more input pins configured to receive a data stream; and  
16           one or more output pins configured to output a data stream;  
17           the one or more input pins being routable to the one or more output pins,  
18           the switch assembly being configured to process both compressed and  
19           uncompressed data streams to provide a compressed output data stream that  
20           represents a user-defined multi-media editing project in which a user can construct  
21           the multi-media editing project by operating on one or more sources of multimedia  
22           content that provide said data streams; and

23           one or more data structures associated with the switch assembly and  
24           configured for use in programming the switch assembly to provide a routing

1 scheme for routing input pins to output pins for a given multi-media editing  
2 project time line.

3

4 14. (Original) The multi-media editing system of claim 13, wherein the  
5 one or more data structures comprise one or more grid structures, individual grid  
6 structures being configured to contain data that defines an association between  
7 input and output pins for the project time line.

8

9 15. (Original) The multi-media editing system of claim 13, wherein the  
10 switch assembly comprises multiple switches.

11

12 16. (Original) The multi-media editing system of claim 15, wherein the  
13 one or more data structures comprise a data structure associated with at least some  
14 of the multiple switches.

15

16 17. (Original) The multi-media editing system of claim 16, wherein the  
17 data structures comprise grid structures that contain data that defines an  
18 association between input and output pins for the project time line.

19

20 18. (Original) The multi-media editing system of claim 15, wherein one  
21 switch is configured to process compressed data streams, and another switch is  
22 configured to process uncompressed data streams.

23

24

25

1       19. (Original) The multi-media editing system of claim 18, wherein the  
2 one or more data structures comprise data structures associated with the switches  
3 that are configured to process the compressed and uncompressed data streams.

4

5       20. (Original) The multi-media editing system of claim 19, wherein the  
6 data structures comprise grid structures that contain data that defines an  
7 association between each switch's input and output pins for the project time line.

8

9       21. (Currently Amended) A multi-media editing system comprising:  
10           a switch assembly comprising one or more non-hardware matrix switches,  
11           individual matrix switches comprising:

12           one or more input pins configured to receive a data stream; and  
13           one or more output pins configured to output a data stream;  
14           the one or more input pins being routable to the one or more output pins,  
15           the switch assembly being configured to process both compressed and  
16           uncompressed data streams to provide a compressed output data stream that  
17           represents a user-defined multi-media editing project in which a user can construct  
18           said editing project by operating on one or more sources of multimedia content  
19           that provide said data streams.

20

21       22. (Original) The multi-media editing system of claim 21, wherein the  
22 switch assembly comprises multiple switches.

23

24       23. (Original) The multi-media editing system of claim 22, wherein one  
25 switch is configured to process compressed data streams.

1  
2 24. (Original) The multi-media editing system of claim 22, wherein one  
3 switch is configured to process uncompressed data streams.

4  
5 25. (Original) The multi-media editing system of claim 22, wherein one  
6 switch is configured to process compressed data streams, and another switch is  
7 configured to process uncompressed data streams.

8  
9 26. (Original) The multi-media editing system of claim 21 further  
10 comprising one or more data structures associated with the switch assembly and  
11 configured for use in programming the switch assembly to provide a routing  
12 scheme for routing input pins to output pins for a given multi-media editing  
13 project time line.

14  
15 27. (Original) The multi-media editing system of claim 26, wherein the  
16 one or more data structures comprise grid structures that contain data that defines  
17 an association between input and output pins for the project time line.

18  
19 28. (Currently Amended) An media processing system comprising:  
20 switch means for receiving compressed and uncompressed data streams  
21 associated with sources that are to be incorporated into a user-defined editing  
22 project in which a user can construct said editing project by operating on one or  
23 more sources of multimedia content that provide said data streams, and said switch  
24 means processing the compressed and uncompressed data streams to provide a  
25 single compressed output stream that represents the project; and

1 programming means associated with the switch means and configured to  
2 program the switch means to provide the single compressed output stream.

3  
4 29. (Original) The multi-media editing system of claim 28, wherein the  
5 switch means comprises:

6 first switch means for processing the uncompressed data stream to provide  
7 an output uncompressed data stream;

8 second switch means for processing the compressed data stream to provide  
9 an output compressed data stream; and

10 third switch means for processing the output uncompressed and compressed  
11 data streams to provide the single compressed output stream.

12  
13 30. (Original) The multi-media editing system of claim 28, wherein the  
14 switch means comprises means for providing a data stream as a feedback data  
15 stream that is processed by the switch means.

16  
17 31. (Original) The multi-media editing system of claim 28, wherein the  
18 switch means comprises switch means implemented in software.

19  
20 32. (Original) The multi-media editing system of claim 28, wherein the  
21 switch means comprises:

22 first software switch means for processing the uncompressed data stream to  
23 provide an output uncompressed data stream;

24 second software switch means for processing the compressed data stream to  
25 provide an output compressed data stream; and

1           third software switch means for processing the output uncompressed and  
2 compressed data streams to provide the single compressed output stream.

3  
4           33. (Currently Amended) A multi-media editing system comprising:  
5           a first software-implemented matrix switch comprising one or more input  
6 pins and one or more output pins, the one or more input pins being routable to the  
7 one or more output pins, the first matrix switch being configured to process one or  
8 more uncompressed data streams and output an uncompressed data stream;

9           a second software-implemented matrix switch comprising one or more  
10 input pins and one or more output pins, the one or more input pins being routable  
11 to the one or more output pins, the second matrix switch being configured to  
12 process one or more compressed data streams and output a compressed data  
13 stream; and

14           a third software-implemented matrix switch comprising multiple input pins  
15 and multiple output pins, the input pins being routable to one or more output pins,  
16 the third matrix switch being configured to receive an uncompressed data stream  
17 from the first switch and a compressed data stream from the second switch and  
18 process the received data streams to provide a single compressed output data  
19 stream that represents a user-defined multi-media editing project in which a user  
20 can construct said editing project by operating on one or more sources of  
21 multimedia content that provide said data streams.

22  
23           34. (Original) The multi-media editing system of claim 33 further  
24 comprising a software-implemented compressor element coupled with the third  
25 switch and configured to receive and compress an uncompressed data stream.

1  
2       35. (Original) The multi-media editing system of claim 34 further  
3 comprising a feedback path between the compressor element and an input pin of  
4 the third switch configured to provide a compressed data stream to the third  
5 switch's input pin.

6  
7       36. (Original) The multi-media editing system of claim 33, wherein the  
8 third switch is programmed to receive, when available, a data stream from the  
9 second switch and, when a data stream is unavailable from the second switch, seek  
10 a data stream from the first switch.

11  
12       37. (Original) One or more computer-readable having computer-  
13 readable instructions thereon which, when executed by a computer, provide the  
14 multi-media editing system of claim 33.

15  
16       38. (Currently Amended) A multi-media editing system comprising:  
17           first software switch means for processing one or more uncompressed data  
18 streams to provide an uncompressed data stream, the switch means comprising at  
19 least one feedback loop that modifies a data stream that is output by the switch  
20 means and provides the modified data stream as an input to the switch means;

21           second software switch means for processing one or more compressed data  
22 streams to provide a compressed data stream; and

23           a third software switch means for receiving an uncompressed data stream  
24 from the first software switch means and a compressed data stream from the  
25 second software switch and processing the received data streams to provide a

1 single compressed output data stream that represents a user-defined multi-media  
2 editing project in which a user can construct said editing project by operating on  
3 one or more sources of multimedia content that provide said data streams.

4

5 39. (Original) The multi-media editing system of claim 38 further  
6 comprising programming means associated with the first and second software  
7 switch means for programming routing of data streams therethrough.

8

9 40. (Currently Amended) A multi-media editing system comprising:  
10 a first software-implemented matrix switch comprising one or more input  
11 pins and one or more output pins, the one or more input pins being routable to the  
12 one or more output pins, the first matrix switch being configured to process one or  
13 more uncompressed data streams and output an uncompressed data stream;

14 a second software-implemented matrix switch comprising one or more  
15 input pins and one or more output pins, the one or more input pins being routable  
16 to the one or more output pins, the second matrix switch being configured to  
17 process one or more compressed data streams and output a compressed data  
18 stream;

19 a third software-implemented matrix switch comprising multiple input pins  
20 and multiple output pins, the input pins being routable to one or more output pins,  
21 the third matrix switch being configured to receive an uncompressed data stream  
22 from the first switch and a compressed data stream from the second switch and  
23 process the received data streams to provide a single compressed output data  
24 stream that represents a user-defined multi-media editing project in which a user

1       can construct said editing project by operating on one or more sources of  
2       multimedia content that provide said data streams; and

3               one or more data structures associated with at least some of the matrix  
4       switches and configured for use in programming the associated switches to  
5       provide a routing scheme for routing input pins to output pins.

6

7       41. (Original) The multi-media editing system of claim 40, wherein the  
8       one or more data structures comprise one or more grid structures that contain data  
9       that defines an association between input and output pins for a project time line.

10

11       42. (Original) The multi-media editing system of claim 40, wherein the  
12       one or more data structures comprise multiple data structures, individual data  
13       structures being associated with the first and second switches.

14

15       43. (Original) The multi-media editing system of claim 42, wherein the  
16       data structures comprise grid structures each of which contains data that defines an  
17       association between input and output pins of its associated switch for a project  
18       time line.

19

20       44. (Currently Amended) A multi-media editing method comprising:  
21               providing a switch assembly comprising one or more software-  
22       implemented matrix switches, individual matrix switches comprising one or more  
23       input pins and one or more output pins, the one or more input pins being routable  
24       to the one or more output pins, the switch assembly being configured to process  
25       both compressed and uncompressed data streams to provide a compressed output

1 data stream that represents a user-defined multi-media editing project in which a  
2 user can construct said editing project by operating on one or more sources of  
3 multimedia content that provide said data streams; and

4 programming the switch assembly using one or more data structures, said  
5 programming providing a routing scheme for routing input pins to output pins for  
6 a given time period.

7  
8 45. (Original) The multi-media editing method of claim 44, wherein said  
9 providing comprises providing multiple switches at least one of which being  
10 configured to process both compressed and uncompressed data streams.

11  
12 46. (Original) The multi-media editing method of claim 44, wherein said  
13 providing comprises providing multiple switches, one of which being configured  
14 to process only compressed data streams.

15  
16 47. (Original) The multi-media editing method of claim 44, wherein said  
17 providing comprises providing multiple switches, one of which being configured  
18 to process only uncompressed data streams.

19  
20 48. (Original) The multi-media editing method of claim 44, wherein said  
21 providing comprises providing multiple switches:

22 at least one of which being configured to process both compressed and  
23 uncompressed data streams;

24 at least one of which being configured to process only compressed data  
25 streams; and

1 at least one of which being configured to process only uncompressed data  
2 streams.

3  
4 49. (Original) The multi-media editing method of claim 44, wherein said  
5 programming comprises programming the switch assembly using one or more grid  
6 structures, individual grid structures containing data defining an association  
7 between input pins, output pins, and a project time line.

8  
9 50. (Original) The multi-media editing method of claim 44 further  
10 comprising:

11 representing the editing project as a hierarchical tree structure; and  
12 processing the hierarchical tree structure to provide at least one grid  
13 structure containing data that defines an association between input pins, output  
14 pins and a time line defined by the editing project.

15  
16 51. (Original) The multi-media editing method of claim 44, wherein said  
17 programming comprises:

18 defining a first grid structure containing data that defines an association  
19 between input pins, at least one output pin and a time line defined by the editing  
20 project; and

21 defining a second grid structure containing data that defines an association  
22 between different input pins, at least one different output pin and the time line  
23 defined by the editing project.

1       52. (Original) The multi-media editing method of claim 51, wherein the  
2 first grid structure is associated with programming the switch assembly to process  
3 the uncompressed data stream.

4

5       53. (Original) The multi-media editing method of claim 51, wherein the  
6 second grid structure is associated with programming the switch assembly to  
7 process the compressed data stream.

8

9       54. (Original) The multi-media editing method of claim 51, wherein said  
10 defining of the second grid structure comprises deriving the second grid structure  
11 from the first grid structure.

12

13       55. (Original) One or more computer-readable media having computer-  
14 readable instructions thereon which, when executed by a computer, implement the  
15 method of claim 44.

16

17       56. (Original) A multi-media editing application executable on one or  
18 more computers to implement the method of claim 44.

19

20       57. (Currently Amended) One or more computer-readable media having  
21 computer-readable instructions thereon which, when executed by a computer,  
22 cause the computer to:

23              provide a switch assembly comprising multiple software-implemented  
24 matrix switches, individual matrix switches comprising one or more input pins and

1 one or more output pins, the one or more input pins being routable to the one or  
2 more output pins, the switch assembly comprising:

3 a first switch configured to process uncompressed data streams to provide  
4 an uncompressed output data stream;

5 a second switch configured to process compressed data streams to provide a  
6 compressed output data stream; and

7 a third switch configured to receive both the uncompressed and compressed  
8 output data streams and process the data streams to provide a compressed output  
9 data stream that represents a user-defined multi-media editing project in which a  
10 user can construct said editing project by operating on one or more sources of  
11 multimedia content that provide said data streams; and

12 program the switch assembly by defining a first grid structure containing  
13 data that defines an association between the first switch's input pins, at least one  
14 output pin and a time line defined by the editing project, and defining a second  
15 grid structure containing data that defines an association between the second  
16 switch's input pins, at least one output pin and the time line defined by the editing  
17 project.

18  
19 58. (Original) The computer-readable media of claim 57, wherein the  
20 instructions cause the computer to derive the second grid structure from the first  
21 grid structure.

22  
23 59. (Original) The computer-readable media of claim 58, wherein the  
24 instructions cause the computer to derive the second grid structure by:  
25

1 determining whether any entries in the second grid structure are associated  
2 with a data stream source that is not in a format that is the same as or compatible  
3 with a format associated with the compressed output data stream that represents a  
4 user-defined multi-media editing project; and

5 removing any entry that is not in the same or compatible format.

6  
7 60. (Original) The computer-readable media of claim 59, wherein said  
8 format is associated with a frame rate.

9  
10 61. (Original) The computer-readable media of claim 59, wherein said  
11 format is associated with a data rate.

12  
13 62. (Original) The computer-readable media of claim 58, wherein the  
14 instructions cause the computer to derive the second grid structure by:

15 copying the first grid structure;  
16 evaluating the copied grid structure to ascertain entries associated with data  
17 source streams that are modified in some way; and  
18 removing any grid entries associated with data source streams that are  
19 modified in some way.

20  
21 63. (Currently Amended) A multi-media editing method comprising:  
22 providing a first software-implemented matrix switch comprising one or  
23 more input pins and one or more output pins, the one or more input pins being  
24 routable to the one or more output pins, the first matrix switch being configured to

1 process one or more uncompressed data streams and output an uncompressed data  
2 stream;

3 providing a second software-implemented matrix switch comprising one or  
4 more input pins and one or more output pins, the one or more input pins being  
5 routable to the one or more output pins, the second matrix switch being configured  
6 to process one or more compressed data streams and output a compressed data  
7 stream;

8 providing a third software-implemented matrix switch comprising multiple  
9 input pins and multiple output pins, the input pins being routable to one or more  
10 output pins;

11 receiving, with the third matrix switch, an uncompressed data stream from  
12 the first switch and a compressed data stream from the second switch; and

13 processing the received data streams with the third switch to provide a  
14 single compressed output data stream that represents a user-defined multi-media  
15 editing project in which a user can construct said editing project by operating on  
16 one or more sources of multimedia content that provide said data streams.

17  
18 64. (Original) The multi-media editing method of claim 63, wherein said  
19 processing comprises:

20 compressing the uncompressed data stream received from the first switch  
21 using a software-implemented compressor element coupled with the third switch;  
22 and

23 routing the compressed data stream that was compressed by the compressor  
24 element to an input pin of the third switch.

1       65. (Original) The multi-media editing method of claim 63 further  
2 comprising receiving with the third switch, when available, a data stream from the  
3 second switch and, when a data stream is unavailable from the second switch,  
4 seeking with the third switch, a data stream from the first switch.

5  
6       66. (Original) One or more computer-readable media having computer-  
7 readable instructions thereon which, when executed by a computer, implement the  
8 method of claim 63.

9  
10      67. (Currently Amended) One or more computer-readable media having  
11 computer-readable instructions thereon which, when executed by a computer,  
12 cause the computer to:

13       process at least one compressed data stream to provide an output  
14 compressed data stream that comprises a portion of a user-defined multi-media  
15 editing project that is associated with a data stream source;

16       process one or more uncompressed data streams to manipulate the one or  
17 more uncompressed data streams to provide an output uncompressed data stream  
18 that comprises a different portion of a user-defined multi-media editing project  
19 that is associated with one or more data stream sources;

20       compress the output uncompressed data stream; and

21       associate the output compressed data stream and the compressed output  
22 uncompressed data stream together to provide a compressed stream that represents  
23 a user-defined multi-media editing project in which a user can construct said  
24 editing project by operating on one or more sources of multimedia content that  
25 provide said data streams.

1  
2 68. (Original) The computer-readable media of claim 67, wherein the  
3 instructions cause the computer to provide a software-implemented matrix switch  
4 that associates the data streams to provide the user-defined multi-media editing  
5 project.

6  
7 69. (Original) The computer-readable media of claim 67, wherein the  
8 instructions cause the computer to provide a software-implemented matrix switch  
9 that associates the data streams to provide the user-defined multi-media editing  
10 project, the software-implemented matrix switch being configured to receive the  
11 output compressed data stream when it is available, and seek the output  
12 uncompressed data stream when the output compressed data stream is unavailable.

13  
14 70. (Currently Amended) One or more computer-readable media having  
15 computer-readable instructions thereon which, when executed by a computer,  
16 cause the computer to:

17 receive and process one or more uncompressed data streams with a first  
18 software-implemented matrix switch comprising one or more input pins and one  
19 or more output pins, the one or more input pins being routable to the one or more  
20 output pins to output an uncompressed data stream;

21 receive and process one or more compressed data streams with a second  
22 software-implemented matrix switch comprising one or more input pins and one  
23 or more output pins, the one or more input pins being routable to the one or more  
24 output pins to output a compressed data stream;

receive and process the uncompressed data stream that is output by the first switch and the compressed data stream that is output by the second switch with a third software-implemented matrix switch comprising multiple input pins individual ones of which receive data streams, and one or more output pins individual ones of which provide data streams, the one or more input pins being routable to the one or more output pins to output, at one output pin, a compressed data stream that represents a user-defined multi-media editing project in which a user can construct said editing project by operating on one or more sources of multimedia content that provide said data streams.

71. (Original) The computer-readable media of claim 70, wherein the instructions cause the computer to:

compress the uncompressed data stream output by the first switch using the third switch; and

incorporate the compressed uncompressed data stream with the compressed data stream that is output by the second switch to provide the compressed data stream that represents the user-defined editing project.

72. (Original) The computer-readable media of claim 70, wherein the instructions cause the computer to program the first and second switches using first and second data structures respectively associated with the first and second switches, each data structure providing a routing scheme for routing switch input pins to switch output pins.

1       73. (Original) The computer-readable media of claim 72, wherein the  
2 first and second data structures comprise grid structures that provide an  
3 association between input pins, output pins and a time line defined by a user-  
4 defined multi-media editing project.

5  
6       74. (Original) The computer-readable media of claim 73, wherein the  
7 instructions cause the computer to derive the second grid structure from the first  
8 grid structure.

9  
10      75. (Original) The computer-readable media of claim 74, wherein the  
11 instructions cause the computer to derive the second grid structure by:

12       copying the first grid structure;  
13       evaluating the copied grid structure to ascertain entries associated with data  
14 source streams that are modified in some way; and  
15       removing any grid entries associated with data source streams that are  
16 modified in some way.